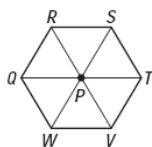


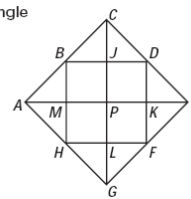
The diagonals of the regular hexagon shown form six equilateral triangles. Use the diagram to complete the statement.

6. A clockwise rotation of  $60^\circ$  about  $P$  maps  $R$  onto  $?$ .
7. A counterclockwise rotation of  $60^\circ$  about  $?$  maps  $R$  onto  $Q$ .
8. A clockwise rotation of  $120^\circ$  about  $Q$  maps  $R$  onto  $?$ .
9. A counterclockwise rotation of  $180^\circ$  about  $P$  maps  $V$  onto  $?$ .



**Describing an Image** State the segment or triangle that represents the image.

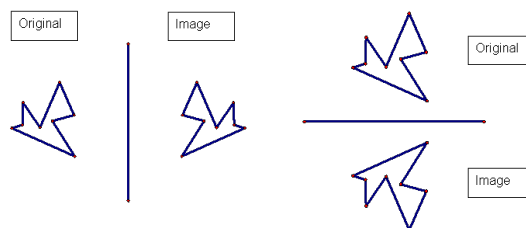
22.  $90^\circ$  clockwise rotation of  $\overline{AB}$  about  $P$
23.  $90^\circ$  clockwise rotation of  $\overline{KF}$  about  $P$
24.  $180^\circ$  rotation of  $\triangle BCJ$  about  $P$
25.  $180^\circ$  rotation of  $\triangle KEF$  about  $P$
26.  $90^\circ$  counterclockwise rotation of  $\overline{CE}$  about  $E$



GSP

## Reflections and Dilations

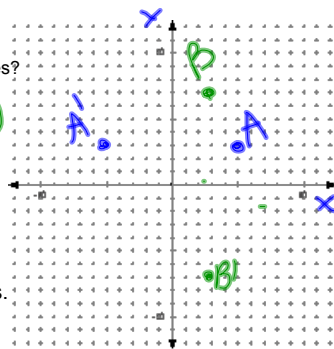
A **reflection** is a transformation that creates a mirror image. It flips the original across a line of reflection.



Let's look at reflections in the coordinate plane. Reflect the point A in the y-axis.

A (5, 3) A' (-5, 3)  
What happened to the coordinates?

$$(x, y) \rightarrow (-x, y)$$



Reflect point B in the x-axis.

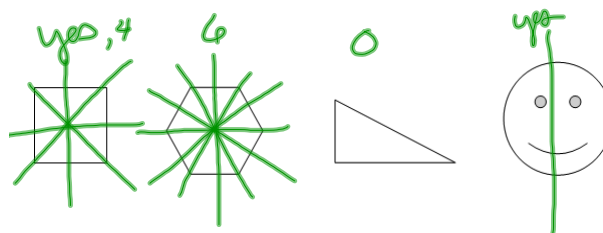
B (3, 7) B' (3, -7)

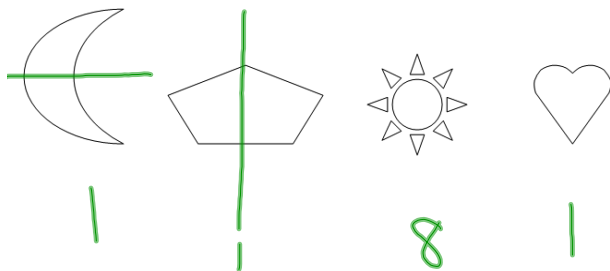
What happened to the coordinates?

$$(x, y) \rightarrow (x, -y)$$

**Symmetry**

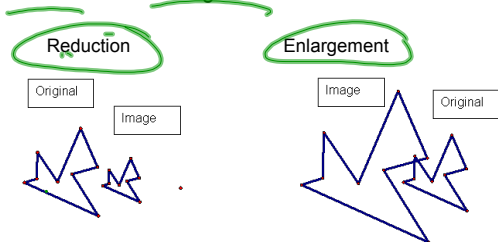
An object is said to have line symmetry if it can fold onto itself and match up perfectly. How many lines of symmetry do the following figures have, if any?



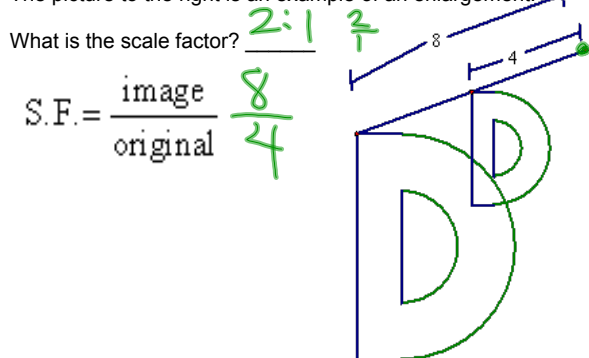


### Dilations

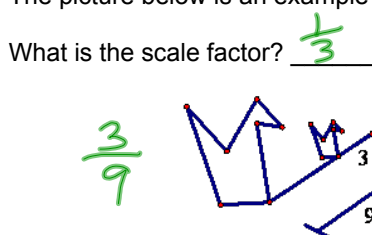
A **dilation** is a transformation that changes size. It can be a reduction or an enlargement.



The picture to the right is an example of an enlargement.



The picture below is an example of a reduction.

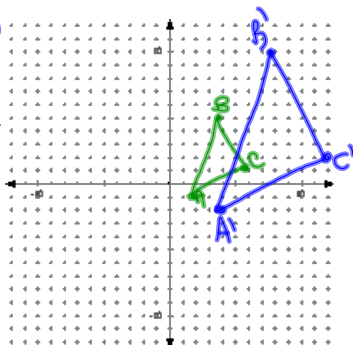


### Dilations on the coordinate plane

Dilate the triangle by a ratio of 2.

A (2, -1) A' (4, -2)  
B (4, 5) B' (8, 10)  
C (6, 1) C' (12, 2)

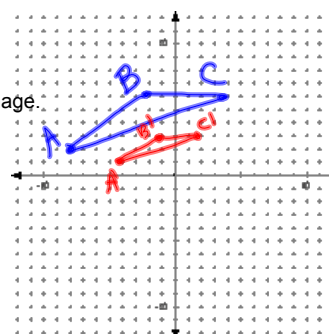
Graph the original and the image.



Dilate the triangle by a ratio of  $\frac{1}{2}$ .

A (-8, 2) A' (-4, 1)  
B (-2, 6) B' (-1, 3)  
C (4, 6) C' (2, 3)

Graph the original and the image.



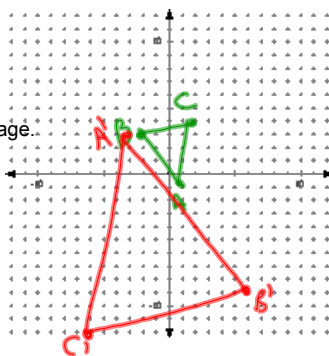
Dilate the triangle by a ratio of -3.

A (1, -1) A' (-3, 3)

B (-2, 3) B' (6, -9)

C (2, 4) C' (-6, -12)

Graph the original and the image.



**Assignment:**

p286-287 2-15, 17, 18, 24-26

p. 396 4-9

p. 399 #3 list coordinates

Attachments

---

rotation\_hw.gsp